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EVALUATION OF THE LANGUAGE RETARDATION UNIT OF THE COMMUNICATION SKILLS CENTERS PROJECT, 1966-67.

DETROIT PUBLIC SCHOOLS, MICH.

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THIS REPORT DESCRIBES THE 1966-67 ACTIVITIES OF AN ELEMENTARY AND SECONDARY EDUCATION ACT, TITLE I PROGRAM WHICH PROVIDES INTENSIVE THERAPY FOR PRESCHOOL CHILDREN WITH SEVERE LANGUAGE HANDICAPS. THE PROGRAM ALSO OFFERS EDUCATORS FRESH INSIGHT INTO THE NATURE AND TREATMENT OF SPEECH DISORDERS. INCLUDED IN THE REPORT ARE BRIEF CASE STUDIES OF THE TEN ENROLLEES AND TABLES WHICH GIVE THEIR PERFORMANCE RATINGS. THE RATINGS COVER THE AREAS OF COORDINATION, PERCEPTION, SENSORY DISCRIMINATION, MEMORY, LANGUAGE, SOCIALIZATION, AND BEHAVIOR CHARACTERISTICS. ACCORDING TO THE RATINGS, NINE OF THE 10 CHILDREN HAVE IMPROVED IN FROM FIVE TO 14 OF THE PERFORMANCE AREAS. THE COST PER CHILD FOR A 2-YEAR PERIOD OF THIS SPECIAL TREATMENT IS ESTIMATED TO BE ABOUT $4,000. AMONG THE RECOMMENDATIONS OF THE REPORT IS THE SUGGESTION THAT PROVISION BE MADE FOR RESEARCH TO MEASURE THE KINDS OF BEHAVIORAL CHANGES WHICH RESULT FROM SPECIFIC TYPES OF THERAPY. THE APPENDIXES TO THE REPORT CONTAIN EXTENSIVE CASE HISTORIES OF TWO OF THE 1966-67 ENROLLEES AND A DESCRIPTION OF THE MATERIALS USED IN LANGUAGE THERAPY. (LB)

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Detroit Public Schools

SUMMARY OF PROJECT EVALUATION (ESEA, TITLE I)

Research and Development January, 1968

Title Evaluation of the Language Retardation Unit of the Communication Skills Centers Project

Purpose To evaluate the effectiveness of the Language Retardation Unit in developing communication abilities in language-retarded preschool children and in providing new insights into the causes, nature, and treatment of speech disorders.

Investigators Research and Development Department, Program Evaluation Section*

Participants Four teacher specialists in speech correction, the ten preschool pupils enrolled in the project during the school year 1966-67, and twelve new entrants who are severely retarded in speech development.

Procedures The progress of the ten original entrants has been followed up and reported as of December, 1967. Teachers in the project have reported gross progress of each child in coordination, perception, sensory discrimination, memory, language, socialization, and behavior characteristics. Case studies of two new entrants and a description of materials used for language therapy are given as supplemental data.

Findings Of the ten original preschool children in the project, three are attending the regular school classes half-days while continuing treatment in the unit. Their full-time release from the unit is anticipated in the near future. Two are placed or awaiting placement in day-care centers for the trainable mentally retarded; another is awaiting placement in a special education class. This child and three others are still in the Language Retardation Unit, where they continue to show progress. One, having multiple and severe physical disabilities, has been withdrawn from the program.

With the exception of the one child who has been withdrawn from the project, all of the children have shown improvement in from five to fourteen of the performances in which they were rated by their teachers.

*The evaluation report was written by the Research and Development Department on the basis of evaluative data provided by the staff of the Language Retardation Unit.

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Conclusions

On the basis of the success shown by this demonstration project and of the great potential savings to society for each of the children who is enabled through language therapy to assume a social role commensurate with his intellectual ability, it is recommended that

1. Additional funding be sought to continue and to extend the operation of the Language Retardation Unit.

2. Provision be made to change the operation of at least one of the Language Retardation Units from its present status of a field trial to a research project, with a full-time psychologist, trained in working with children of the type found in the project, working with a rigid research design to measure the kind and extent of behavioral changes resulting from specific therapeutic treatments given for specified types or causes of retardation in language development.

3. Reports of the methods and results of the field demonstration of the Language Retardation Unit be disseminated through scientific journals and further reports at meetings of learned societies.

EVALUATION OF THE

LANGUAGE RETARDATION UNIT OF THE COMMUNICATION SKILLS CENTERS PROJECT

1966-67

Research and Development Department
Program Evaluation Section
Detroit Public Schools
January, 1968

EVALUATION OF THE LANGUAGE RETARDATION UNIT OF THE COMMUNICATION SKILLS CENTERS PROJECT*

Background

The Problem

During the period from September '63 through June '65, the Speech and Hearing Clinic of the Detroit Public Schools made appointments for over 4,300 children; about two-thirds of them of preschool age. Of these 4,300 children, about 880 were severely retarded in language development. Since the ultimate disposition of the person with severe language handicaps is probably exclusion from school or institutionalization (at a cost of approximately $250,000 each over a 40 year period.) and considering also the fact that these institutions are designed primarily for the mentally retarded, the institutionalization of the language handicapped child is economically, educationally, and psychologically unsound.

Purpose of the Language Retardation Unit

The Language Retardation Unit of the Communications Skills Center Project, first funded under the Elementary and Secondary Education Act, Title I, in 1966, is designed as a pilot project for the treatment of children with severe language handicaps. Basically, the Language Retardation Unit is an exploratory effort to determine the benefits to be derived from exposing preschool language-retarded children to a daily program of intensive language therapy. The basic purpose of the project is to help the children learn to communicate well enough to give them a good chance for success in the regular school program or in appropriate special education classes. An important subsidiary objective of the project is to develop new insights into the nature, causes, and treatment of language disorders in preschool children.

The severity of the problem as related to the individual child may be judged through study of the two case studies which are presented in the Appendix on pages 16-30.

The Operation of the Unit

In February, 1966, the Speech and Hearing Clinic selected for participation in the unit ten preschool children who had previously been referred to the clinic because of their severe retardation in speech and language development. On March 14, these children began attending daily language therapy sessions in two classrooms at the Campbell Annex School. Each child was assigned to one of two groups of five children each, with one group attending for two and one-half hours in the morning, and the other for two and one-half hours in the afternoon. They were transported to

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*Funded under the Elementary and Secondary Education Act, Title I, as part of the Communication Skills Centers Project.

and from the Campbell Annex, where classes were held, five days a week by taxicab.

The unit was transferred to the Garfield School for the continuation of the project during the school year 1966-67 and the teaching staff was enlarged to four speech therapists working with 21 children.

The children in the program were taught individually or in groups of two to five children. The periods of intensive instruction were brief and separated by other kinds of activity, such as language oriented play therapy. The teachers used a variety of teaching techniques specifically geared toward language development and another group of techniques designed to meet children's needs for non-verbal training. The instructional materials used included toys, dolls, puppets, games, raised figures, records, tape recorders, large mirrors, a play village, stories, books, blackboards, bulletin boards, and flannel boards.

A brief outline of the areas of emphasis in the training of the children and some materials used is given in the Appendix to this report, pages 13-15.

During the first two months of the program each child was given thorough pediatric, neurological, audiometric, psychological and psychiatric examinations at the Children's Hospital of Michigan. Additional optimetric examinations were given to all the enrollees during the school year 1966-67. The results of these examinations provided a comprehensive diagnosis of each child's problems and guided the development of a program of therapy to meet his individual needs.

Another important feature of the project was the active participation of the parents of the children enrolled. The parents were required to take their children to Children's Hospital for their physical and psychological examinations and to attend regularly scheduled meetings with the teachers.

The second operational phase of the program was concluded in June at the end of the school year, 1966-67. At this time some of the children had received about thirteen and one-half months of treatment; others had received about eight months of treatment.

Pupil Progress

During the first operational phase of the project no systematic assessment was made of the effectiveness of the services provided by the Language Retardation Unit. Teachers in the original unit did write brief summary reports of the progress made by the 10 children in the unit.

These reports showed that the lack of ability to communicate was almost always accompanied by other deviations from normal behavior: lack of motor control, extreme withdrawal, inability to follow directions and perform simple tasks, and in some cases, hyperactivity and lack of emotional control. Associated with the lack of ability to communicate orally was lack of receptive language ability. Cases ranged in severity

from one child who did not have even the motor control necessary for the action of swallowing, to another child who could "read with full comprehension" even though he could "only speak in vowels and very immature sentences."

The summary statements as given in the evaluation report for 1965-66 are repeated in this report for the school year 1966-67, along with a brief statement of the present status of each of the 10 children. It might be noted that the statements of status of the pupils in December, 1967, (one half year beyond the period covered by this evaluation report) give rather striking evidence of the project's success with some of the children who have gone from the Language Retardation Units to other educational programs geared to the abilities of children who are not handicapped in communication skills. Since the educational prognosis for most of the 10 children was extremely unfavorable, their placement elsewhere indicates a marked improvement. Only time and a follow-up of their educational and social adjustment will indicate the permanency and the extent of their improvement.

Reports of Pupils in the 1965-66 Language Retardation Unit I

Arthur: When Arthur first entered the program in March, 1966, it was necessary to physically restrain him due to his high degree of hyperactivity and distractability. He uttered no meaningful sounds and was unable to follow the simplest directions. He displayed no ability to learn even simple tasks and motor coordination was virtually non-existent. The greatest change in his behavior has been the dramatic decrease in hyperactivity and distractibility. His gross motor coordination has noticeably improved, he is able to carry out simple directions, attempts to use language meaningfully, and in general, has learned some of the simple tasks presented to him.

December, 1967: Arthur has been released from the program to await placement in a day care center or "trainable" program.

Bert : In March, 1966, Bert came to school and sat for $2\frac{1}{2}$ hours totally ignoring his environment. He gave no impression of hearing or comprehending anything. He would indulge in autistic-type behavior and would have to be physically restrained. He used no language, and the only sounds he uttered were gross noises meant only for himself. He exhibited a very low frustration tolerance, and would bite and smack himself and then scream. He was placed on seizure-control medication through the efforts of CHM, which served to control him enough so that he began to respond to the environment and to his peers. His behavior has changed considerably, and he now exhibits interest in, and takes part in some of the class activities. He follows simple directions, makes his needs known, relates to his peers (although often in an aggressive manner), and makes occasional attempts to use words or provide animal sounds when called for.

December, 1967: Bert now attends the Metropolitan Detroit Day Care Center in a program for pre-trainable children with autistic characteristics.

Carl : Carl came to the program in March, 1966, with virtually no intelligible language. He was well-behaved but showed no interest in socializing with his peers. He seemed to comprehend all that was said to him but carried out directions hesitatingly, as if he were unsure of himself. He displayed some motor difficulty in activities which required gross coordination, and was very poor in visual-motor coordination. At present, although his speech is still unintelligible, he is able to say many different words quite well. He carries out directions with confidence and has a very good understanding of the abstract. He relates well to his peers and enjoys their company.

December, 1967: Carl attends regular school kindergarten in the morning and the Language Retardation Intensive Care Unit in the afternoon. He should be able to enter the first grade in September, 1968.

Dennis: At first Dennis was totally withdrawn and made no attempts at spontaneous use of language. He seemed to be totally oblivious of his peers, and gave the teachers the impression that he had receptive language difficulties. He would crouch when he walked or ran, and displayed almost constant compulsive behavior about things in the classroom as well as on his own person. Although his behavior remains somewhat bizarre, he is using language very well, with relatively complete and correct sentences. He is also more socialized.

December, 1967: Dennis is attending first grade classes in regular school half days and the other half day at the Intensive Language Unit. He will be released to attend regular school on a full-time basis in January, 1968.

Earl : Earl came to the program in March totally withdrawn, giving no indication of hearing or comprehension. He did not respond to his name, did not follow even the simplest of directions, showed no startle response, and never attended to anything. When he so chose, he would get up and run around the room, indulging in autistic-like behavior. Frequently, he would cover his ears and utter a prolonged /m/ sound. He made no attempt to produce more than the prolonged /m/ or an occasional prolonged vowel. He failed to perform in any way unless he was carried through the activity by one of the teachers. He totally ignored the environment and did not even respond to physical contact, and he even began to enjoy some of the other children. It is only recently however, that he is unable to block out the environment. He tries to withdraw, but seems to be caught up in the

activity which is going on around him. He has not yet attempted to use language or to make his needs known, except in a negative manner such as shaking his head.

December, 1967: Earl is still in the Intensive Language Unit. He interacts well with his peers and the clinicians; he can read and prints many words. However, he is still negative and refuses to use language.

Fred : Early in March the teachers learned that Fred, while not yet four years old, read with full comprehension, even though he spoke only in vowels and very immature sentences. He was extremely hyperactive and distractible, even while on medication, and he had to be physically restrained. He refused to make eye contact when spoken to or attempting to communicate on his own. He did not relate to his peers. Although he performed all tasks well, he did so in a very hurried manner, often without looking because he was distracted by other things he saw and heard. When any attempt was made to have him produce consonants, he would close his mouth quickly and withdraw. He showed total confusion in laterality, and was extremely awkward and clumsy. He was unable to do anything slowly, and would always run rather than walk. At present, he has no further need of medication to control his hyperactivity and distractibility; he is able to exercise control over himself. He has begun to use a few consonants. He can move more slowly if reminded. There has been a slight increase in gross motor coordination.

December, 1967: Fred is progressing very well in all areas except behavior. He attempts to pronounce almost all the consonants, and there has been a great improvement in motor coordination.

George: At first George gave the impression that he did not comprehend language. He continually perseverated in both play and language attempts. Most of what he said was mumbled. He was often unable to carry out simple directions and would frequently become oblivious to his environment. He was unable to learn to identify his locker, either through recognizing his name or the location of the locker. At present, although he does not follow directions given to the whole group unless his name is specifically called, he shows less confusion in carrying out simple tasks. He can now recognize his name so that he can find his locker. Also, he is using language, (although not a great deal), correctly. He seems happier and quicker to respond. He is much more socialized.

December, 1967: George is now using much more language. He will be placed in a special education class since it is felt that he does not have the capacity for regular schooling.

Harry : Harry showed great difficulty in receptive language ability. He was unable to retain either a sequence of directions or a sequence of sounds. He would begin to carry out directions, but become so confused that he would wander about the room, lost. He had few, if any, words he could produce correctly; he was simply unable to produce the sounds. He has shown a phenomenal growth in both language usage and intelligibility. He is able now to use phrases and sentences most of the time, although he still exhibits some difficulty in the rhythm of words. His comprehension has improved greatly, and he seldom shows confusion when given a direction.

December, 1967: Harry now attends kindergarten half-days and the Intensive Language Unit half-days. He should be able to attend first grade on a full-time basis in September, 1968.

Irving: In March, 1966, Irving came to the program with many severe physical disabilities. He was unable to even perform the primitive and important task of swallowing. He simply tipped his head back and let gravity do the work. He was unable to chew and drooled constantly because he couldn't close his lips or swallow. His tongue was almost completely immobile, and as a result, most of the sounds he produced were very nasal vowels. At present, he is able to swallow, although it is still quite a chore for him. His drooling is much more controlled because he has learned to close his lips. He is able to drink through a straw as well as blow through it, and just recently, he was able to protrude his tongue over his bottom lip. Until his articulators begin to function, few if any intelligible words can be produced.

December, 1967: Irving was withdrawn from the Intensive Language Unit after the first semester, 1966-67.

John : When John first entered the program, although he did use some meaningful language, his sentences and parts of speech were extremely immature. He would often, throughout the class period, lapse into long periods of complete jargon which he would continue endlessly unless one of the teachers interrupted him. He was able to read anything presented him, however, he lacked full comprehension of what he was reading. He was able to perform most tasks, and if presented with something he was unable to do, he would either begin to cry or more often, lapse into his jargon. He showed total confusion in laterality and in body schema. John would usually block out his environment when things became too much for him. At present, John displays almost a complete absence of jargon. He uses good, complete sentences with correct pronouns, and he uses this correct language more readily and appropriately.

December, 1967: John's socialization is much improved. He maintains better contact with reality. He is to be placed in a residential treatment center for emotionally disturbed children.

Progress of Pupils Enrolled in the Language Retardation Units, 1966-67

In December of 1967, of the 10 original enrollees, 3 were attending both regular school classes and the Intensive Language Unit. Four others are still in the unit; one of these will be placed in a Special Education Class. Two were attending or awaiting placement in day-care centers. One child with multiple and severe physical disabilities had been withdrawn from the project. Two new enrollees were added to the original unit and eleven new enrollees were being trained in a new unit.

While the modest funding of the project does not provide for continuous psychological appraisal of the pupils' progress, there was systematic appraisal in the form of subjective pre- and post treatment judgments made by the speech therapists in charge of the units. These judgments--lacking in scientific precision though they may be--are valid indices based on the experience and training of specialists in a relatively unexplored area of public education.

Tables I and II on pages 8 and 9 give the teachers' estimates of the quality of each childs' development in various aspects of performance related to coordination, perception, language, socialization, and other behavioral characteristics.

Under each performance category two behavioral ratings are given. The first under the heading "S" refers to his performance at the time of entry into the 1966-67 program (usually in September, 1966); the second under the heading "J" refers to his performance at the end of the project year in June, 1967. Teacher judgments are indicated by the letters "G" (Good), "F" (Fair), and "P" (Poor). The absence of any rating indicates the lack of experience or evidence on which to base a judgment.

Names used to designate the different pupils are fictitious. The same pseudonyms as were employed in the 1965-66 report (see Table I, page 8) are used for those pupils continuing in the project during its second phase of operation. The sex of each pupil is <u>not</u> indicated by the pseudonym.

Table I
Performance Ratings of Pupils
in Language Retardation Unit I
September, 1966--June, 1967

Pupil	Coordination				Perception										Sensory Discrimination						Memory				Language				Socialization		Behavior Characteristics					
	Gross Motor		Fine Motor		Visual Motor		Figure Ground		Constancy		Position in Space		Spatial Relations		Tactile		Visual		Auditory		Visual		Auditory		Receptive		Expressive				Hyperactivity		Distractibility		Ability to Follow Directions	
	S	J	S	J	S	J	S	J	S	J	S	J	S	J	S	J	S	J	S	J	S	J	S	J	S	J	S	J	S	J	S	J	S	J	S	J
Fred	P	F	P	F	P	F	F	G	G	G	P	G	F	G	P	F	G	G	P	G	G	G	F	G	G	G	P	F	P	F	P	F	P	G	P	G
Arthur	P	F	P	P	P	P					P	P	P	P	P	P	P	F			P	F	P	P	P	F	P	P	P	P	P	F	P	G	P	G
Bert	F	F	P	G	P	P			P	F			F	G			P	G			P	G			P	F	P	P	P	P	F	G	F	G	P	F
Earl	G	G	G	G	G	G	P	F	G	G	F	F	P	F				G		G	G	G	F	F	P	F	P	P	P	P	P	F	F	G	P	F
George	G	G	P	F	P	F	P	P	P	F	P	P	P	P			P	G	P	F	P	P	P	F	P	F	P	F	P	G	G	F	G	P	P	F
Carl	F	F	P	F	P	F	P	P	F	G	P	F	F	G		G		F	P	G	P	F	P	F	G	G	P	F	P	G	G	G	G	G	F	G
Harry	F	G	F	G	F	G	P	F	F	G	F	G	F	G		G		F	P	F	P	F	P	F	P	G	P	F	P	G	G	G	G	G	F	G
Karen[1]	P	F	P	F	P	F	P	F		G		G	G	G		P		G		G	F	G		G	G	G	P	F	P	P	G	G	P	G	F	G
John	P	F	F	G	F	G	P	F	G	G	P	F	P	F	P	F	G	G	G	G	P	F	P	F	P	F	P	F	P	F	G	G	G	G	P	G
Lenny[2]	P	F	P	P	P	F	P	F		G	P	F	F	G	P	F	G	G	P	F	P	F	G	G	F	G	P	F	P	F	P	P	P	P	F	F

Legend: J=June, '66; S=September, '67; G=Good; F=Fair; P=Poor

[1]New enrollee

[2]New enrollee; see Case Study in Appendix

Table II
Performance Ratings of Pupils
in Language Retardation Unit II
September, 1966--June, 1967

Pupil	Coordination																																			
	Gross Motor				Fine Motor				Perception																													
									Visual Motor		Figure Ground		Constancy		Position in Space		Spatial Relations		Sensory Discrimination		Visual Memory		Auditory Memory		Language				Socialization		Behavior Characteristics							
																									Receptive		Expressive				Hyperactivity		Distractibility		Follow Directions		Aggression	
	J	S	J	S	J	S	J	S	J	S	J	S	J	S	J	S	J	S	J	S	J	S	J	S	J	S	J	S	J	S	J	S	J	S	J	S	J	S
Alice	P	F	P	P					P	F	P				F				F		P	F	P	F	P	G	P	F	P	G			P	F	P	F	G	F
Ben*	G	G	G	G					F	G	F	F	F	G	P	F		F	F	G	F	G	F	G	P	F	P	G	P	G			P	F	P	F	G	F
Charles	P	F	P	F					P	F	P	P	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	P	P	G			P	F	P	F	G	F
Dan	P	F	P	F					P	P	P	F	P	F	P	F	P		P	F	P	F	P	F	P	F	P	P	P	F					P	F	P	F	G	
Eve	P	F	P	F					P	F	P		F		P	P	P	P	P								P	F						P	P	P	F	G	G
Frank	G	G	G	G					F	G	F	G	F	G					F	G	F	G	F	G	G	G	P	F	P	P			P	F	F	F	P	F	G	F
Gregory	P	G	P	F					P	F	P	F	P	F	P	P	P	F	P	F	P	F	P	F	P	F	P	F	P	G			F	P	P	F	P	F	G	P
Henry	P	F	F	G					P	F	P	F	P	F	P	F	P	F	P	G	P	G	F	G	F	G	P	P	P	F					G	G	F	G	G	F
Ivan	G	G	G	G					F	G	F	G	F	G					F	G	F	G	F	G	G	G	P	F	P	F					P	G	P	G	F	F
Jim	F	G	G	G					F	G	P	F	P	G					P	F	P	F	P	F	P	F	P	F	P	G					F	G	F	G	P	P
Kenneth	G	G	G	G					G	G	F	G	F	G					P	F	P	F	P	F	G	G	P	F	P	F			P	F	F	F	P	F	G	F

Legend: J=June, '66; S=September, '67; G=Good; F=Fair; P=Poor
*See Case Study in Appendix

Comparison of pre- and post judgments of teachers, shows that all the pupils improved in from 5 to 14 of the performances rated. The lack of actual measures of performances preclude any reporting of changes in behaviors which were "Good" in September and "Good" in June. In the opinion of the teachers, pupils' behaviors changed from "Poor" to "Good" in many instances.

Again the lack of standards and precision of measurement makes it impossible to judge the degree of change indicated by the ratings. "Good" may indicate acceptable performance in comparison with the abilities of the handicapped child, or it may indicate acceptable performance as compared to that of a child without handicaps such as the project children have.

> [Evaluator's Note: No criticism of the project is to be implied in the above remarks. The project was not designed as a research study; no provision was made in the project budget for a psychometrician, and no evaluation assistance was given to the project staff. Indeed, the time that might have been spent in making and recording more precise measures of progress would have resulted in less service to the children and less progress in their behavioral development. The fact that the teachers have systematically observed pupils' behaviors, have made subjective evaluations, and see improvements gives indication of progress.]

It is also interesting to note that the reports by Unit II show a tendency of pupils to become more overtly aggressive as they improve in other performances. Only in this one trait is there reported poorer performances by seven out of the eleven children. This reported deterioration might possibly be considered by a psychologist as evidence of improvement. The greatest improvements reported are in the areas of sensory discrimination, ability to follow directions, and socialization.

It would be interesting, but outside of the purview of this study, to determine whether the difference between Unit I and Unit II in the estimates of pupils' improvement in socialization, is due to differences in the length of time in the project, in the children themselves, in the treatment given them, or in the perceptions of the teachers.

Conclusions

Severe handicaps in communication skills are likely to result in the exclusion from school or institutionalization of children. The cast in terms of institutional expenses and in the loss of productivity of one child can only be guessed. The estimate of a $250,000 cost to institutionalize a person for 40 years, about $6,250 per year, does not take into account the loss of productivity of the institutionalized person. A most conservative estimate is that a normal, non-handicapped person earns, and pays taxes on an lifetime income of more than $100,000.

A rough estimate of the cost per child for two-years' special treatment in the Language Retardation Unit is $4,000 or about $80,000, for the 21 children in the unit. If the expenditure of $80,000 resulted in one

person's becoming a productive member of society rather than an institutionalized ward of society, the saving would be over $250,000.

Three of the original project children have done so well under intensive language treatment that they are now attending regular school classes part-time and the language unit part-time. Their full-time attendance in regular school is expected soon. One has been released to the Metropolitan Detroit Day Care Center; one is awaiting placement in a day-care center for the "trainable" mentally retarded; the placement of another in a special education class is planned. The latter and three others are still under intensive treatment in the unit. Only one, for whom physical disabilities made the prognosis most negative, has been withdrawn.

In view of the estimates given in the first and second paragraphs, and because of the uncertainty about the future of any of the children in the program, one can only make conjectures about present costs in relations to future savings. The least that can be said is that this project gives promise of being a profitable venture.

The following recommendations were made in the evaluation report of the 1965-66 operation of the project:

1. A full case study report should be made of each of the children in this project. The report should contain findings of physical and psychological examinations, the therapeutic methods employed, anecdotal records, and evidences of improvement made by the child.

2. The project should be continued with the same children for at least one full year, and, if funds are available, the project should be expanded to include more children.

The Appendix of this report contains condensed case studies on two of the new entries into the project. These are of value; they will be of greater value if they are followed by similar post-treatment reports and a follow-up of several years' duration. The project was both enlarged and continued, with the results shown in this evaluation report.

Recommendations

On the basis of the data presented in this report, it is recommended that

1. Additional funding be sought to continue and extend the operation of the Language Retardation Unit. During a period of less than 2 years, 880 cases of severe language handicaps were discovered. The present units service only 21 children.

2. Provision be made for research in one of the Language Retardation Units. Enough evidence of success has

been produced to justify the hiring of a full-time psychologist (trained in working with children of the type found in the project) working with a rigid research design to measure the kind and the extent of behavioral changes resulting from specified therapeutic treatments given for specified types or causes of retardation in language development. This research should include post-treatment as well as pre-treatment administration of pediatric, neurological, audiometric, psychological and psychiatric examinations of each child in the project.

3. Case studies of typical children in the project be made and dissemmated. These case studies should go beyond those initial case studies reported in the Appendix, and should report the treatment recommendations of the examiners, the treatments administered, precise measurements of development during and at the end of the treatment, results of physical and psychological examinations at the end of treatment, and some follow-up of the childs' progress after discharge from the project.

The Language Retardation Unit for preschool children is an expensive but creative innovation in public school education. If funding can be provided, the project should be developed from its present experimental or field trial status to a full-fledged research project involving all of the specialized medical, psychiatric, psychological, and educational services available in Metropolitan Detroit.

APPENDIX A

Areas of Emphasis and Materials Used in
Training Children in the Language Retardation Units

Area of Emphasis	Materials and Activities
I Coordination Training	Obstacle Course
A. Gross Motor Activities Activities include visual-motor; language responses are elicited whenever possible. Comprehension is constantly checked and trained through all activities.	Tunnel to creep through Step-over bar Geometric forms to walk on Balance beam Tether ball Punching bag Tricycle Fire fly Rocky Boat
B. Fine Motor Activities Closely related to visual-motor training.	See also under Visual-Motor Training
II Perception Training	Chalk board Play Doh and Clay Busy Box with moveable parts making noises and requiring opening and closing Blocks of varying sizes Color cone Fitting board Postal station Peg board Hammer & peg pounding set Lotto game Looney Links Snap blocks Mosaic nesting blocks Lacing boot Kitty in the Keg Puzzles Button and snap boards Stringing beads Scissors & paste Paints Crayons Templates Nut and bolt Graduated inlays Sorting activities Frostig kit
A. Visual-Motor This training helps develop discrimination of color, size, and shape.	

B. Figure - Ground

- Frostig kit
- Selecting objects or parts of pictures, etc.
- Puzzles

C. Perceptual Constancy

- Continual training
- Transferring from object to picture
- Sizes
- Colors

D. Position in Space

- Body image training
- Obstacle course
- Physical activities
- Concept Records: Deals with identification of body parts, etc.
- Flannel Face
- Chalk board

E. Spatial Relations

- All "position in space" in training
- Puzzles
- Many items from visual-motor
- Chalk board

F. Sensory Discrimination

1) Tactile

- Clay, play doh, finger paint, "grab bag", feeling a variety of surfaces, objects, etc. Tracing with fingers.

2) Visual

- See visual motor
- Chalk board, felt board, etc.
- Sequencing work
- Lotto

3) Auditory

- Identification of Sounds
- "Busy Box"
- Records
- Rhythm band instruments
- Stories
- Lotto

G. Memory

1) Visual

See visual-motor
Size, shape, color
Picture identification
Some number concepts
Magnetic Alphabet Board
Reproducing geometric shapes to more difficult things.

2) Auditory

Sequencing work
Discrimination activities
Following verbal directions
Lotto

III Language Training

A. Receptive Training

Following directions of all kinds
All activities and materials used for other areas, both verbal and nonverbal
Pictures - identification
Objects - identification
Classifications:
Food, clothing, etc.
Shapes
Colors
Body Image, Flannel Face
Tracing body on paper
Rhyming Pictures
Pre-primer Reading Series
Sequence Pictures

B. Expressive

Whenever possible we require verbal responses from children, no matter what activity. Records, tape recordings.
Naming, telephone, word scrap books, etc. Gesture, when child has no verbal language, is required as a response.

C. Speech Training

For selected children who show readiness for it.
Tongue exercises
Sound drill
Blowing exercises, etc.

APPENDIX B

Case Studies of Two Pupils in the Intensive Language Unit of the Communications Skills Center Project 1966--1967

The following case studies of two pupils enrolled in the Language Retardation (Intensive Language) Unit of the Communications Skills Centers Project have been cut somewhat to protect the anonymity of the pupils and their families. This has led to the omission of some family background factors which may have contributed to the child's difficulties in communication. Other than the deletion of one section of the reports, the only changes which have been made are the substitutions of pseudonyms for the children's names.

BEN: A CASE STUDY

Introduction

Ben is a four and a half year old boy who, according to the psychiatric social worker, psychiatrist, neurologist, and psychologist on his case, may have sustained minimal brain damage due to intrauterine conditions. He is currently enrolled in a half-day pre-school age children situation funded by the Government for children without language. He is a member of the second Intensive Language Unit under this project which began its classes November 2, 1966, with two teachers for the five children in the morning group, of which Ben is a member.

Ben was referred to the Detroit Board of Education's Department of Speech and Hearing Clinic as a candidate for the language program by the Wayne State University Speech Clinic in September, 1966.

Following are summaries of the reports from each of the members of the hospital team that examined Ben, with their respective impressions. The clinician has concluded the study with her educational approach to the problem as part of the two-teacher team to fulfill his parents' desire to "teach Ben to talk."

Family History and Interview - 12/66

Family Composition

(This section of the report is omitted).

Developmental History

Ben, now 4.5 years of age, was carried almost to full term and weighed six pounds, seven ounces at birth. During her pregnancy, Mrs. Z. was spotting and attributes this to having received some medical treatment during which hormones were given her. She had some swelling during the pregnancy but nothing significant. Ben's birth occurred after two hours labor, and he looked good to her and seemed to be an active baby. He was placed on formula, ate well and had a good suck. By three months he slept through the night. He began to eat the solid foods at the age of ten days and, by the age of ten months, had given up his bottle. He is described as an active child who always played well.

In terms of developmental tasks, he turned over between six and eight weeks; she does not recall when he sat up; he never really crawled, but started to stand and then walked at ten months of age. He was a head banger and a rocker, so much so that he would make welts on his head. Even now he rocks and places his hands over his ears when he does this. He has also twirled round and round.

The mother felt, as she compared Ben with her older son, John, that when he was not talking by ten months, or so, that something might be wrong. However, she anticipated his needs and gave him the things that he wanted. She was told by a physician not to worry about him until he was three years old. Ben's toilet training began before he was one year old, and it was difficult for her to achieve complete training on account of her own illnesses. However, he is trained now.

Occasionally, Ben has nightmares but he does not wander around the house. He is often frightened by noises and the bread knife. When asked to describe her feeling about the child as an infant, she tells that he was cuddly and she reciprocated this feeling and is attached to him now more than to her other children. His early sounds were "dada" and "mama".

There is an episode when he, at eighteen months of age, had an extremely high fever which required his hospitalization. He had 105 and 106 degree temperatures and had convulsions in the hospital. He was placed on IV and was tied to the bed. This experience frightened him.

After the birth of the youngest child, the mother became concerned about Ben's lack of speech and felt that perhaps the drug she received during pregnancy had affected him. Then she went searching for answers and apparently made the rounds of a great number of different resources. One of them led to Wayne State University, which then sent her to the Board of Education Program.

Impressions

The social worker feels this is a good family with no evident social pathologies. There is a history of steady employment and parental responsibility. In Mrs. Z's current bouts of illness there might be

some feeling of tension conveyed to her children, but nothing which would be germane to Ben's speech problems.

The social worker also feels that Ben is a brain damaged child as a result of Mrs. Z's spotting during her carriage of Ben. He feels that there are positives in this family and the mother's devotion to finding not only the cause of his speech retardation, but also helping him with it will enable Ben to speak.

Summary of Pediatric Examination - 11/66

Past History

Ben has had no serious illnesses except one hospitalization at eighteen months of age for diarrhea and dehydration. One week following this hospitalization he had one generalized convulsion associated with a high fever. He has had no other convulsions. He has had no surgery, serious injuries, or allergies and has had none of the childhood diseases such as measles, mumps or chicken pox. His immunizations are complete, including polio and measles.

Pregnancy and Birth

The mother reported that she spotted off and on throughout the entire pregnancy and took all hormones and provera shots during this time to prevent miscarriage. She had no other illnesses or difficulties during the pregnancy. Ben was born by a normal vaginal delivery. The labor lasted about four hours, although the mother was quite vague about the history. She probably had a general anesthesia. According to her dates, Ben was born three weeks early. He weighed six pounds, seven ounces at birth. Mrs. Z did not see Ben until the next evening. She knew of no difficulties during the neonatal period.

Development and Behavior

Ben walked at ten and a half months. The date of sitting or other motor skills is not readily recalled by the mother; however, she thinks Ben had a normal motor development compared to the other children in the family. Toilet training was completed approximately one year ago and most of the training was done by the maternal aunt since Ben was staying with her due to the mother's hospitalizations.

At home, Ben likes to watch TV, draw, or play with his toys. He does enjoy playing with other children and seems to get along with them quite well. When he is playing with his younger brother, he seems to give in to the brother. Often when he does not get his way, he gets mad and has a tantrum involving banging things around. The mother said she likes to play games with the children quite frequently. She has been told in the past by her pediatrician that she gives in to Ben too much.

Physical Examination

During the time when history was obtained from his mother, Ben was quite active--moving around the office in a somewhat hyperactive manner, doing such things as winding the cord around the lamp trying to plug it in. His mother was quite permissive with regard to his activity. He was rather difficult to examine, being very stubborn about such things as taking off his shirt. He cried for a short time once or twice. His mother was not too demanding of him in asking him to cooperate, and when she did it was in a rather odd way; saying when she wanted him to hold her hand, for example, "Hold my hand or it will fall off". Often she tried to persuade him to do things rather than telling him to do so and tried to make what was done seem like a game.

Ben is a small child. He is 39 inches tall and 30 pounds in weight which places him just below the third percentile for both height and weight as compared to other children his age. His head is normal cephalic. On examination of the eyes, the pupils were equal and round and reacted to light. The extraocular movements were full. The ears were normal in shape and the tympanic membranes and canals were clear. The mouth and throat were both normal. The neck was supple and contained no masses. There were no gross deformation of the chest or back. The lungs were clear to percussion and auscultation. The heart had a regular sinus rhythm and was not enlargened to palpatation or percussion. No murmurs were heard. The abdomen was soft and non-tender and no masses or enlargened organs were felt. The genitalia were normal and both testes were descendant. The extremities showed no weakness or paralysis or deformity, and the dependent reflexes were physiologic. Ben held a pencil rather awkwardly in his fist. He can draw a circle poorly, but no other figures. His feet are quite flat, and he has a partial syndactyly of the second and third toes on both sides.

Summary of Psychiatric Consultation - 12/66

Behavior during Examination

Ben was hyperactive and distractible. He tended to respond immediately to any stimulus in any environment, whether it was movement or words on the part of the examiner. He could listen to directions when he was told to stop doing something. He was alert and perceived what was going on in the environment. His speech was difficult to understand, at first--yet he had many words available if one could understand them.

Ben would imitate the examiner's sounds with good inflection; however, many letters were omitted or distorted. He related very easily and had a wide range of emotional response. He was definitely right handed and had good control over his upper and lower extremities. Because of his inability to grasp abstractions, he scored lower on tests of intelligence. For instance, if pictures were presented to him, he might not identify the objects, but when the concrete object, such as a telephone, was presented to him, he immediately tried to say telephone. This was characteristic of many activities. He was a very sociable boy and adapted very easily to changing situations, but the hyperactivity and distractibility were always present.

Diagnostic Comparison

Ben suffered from central nervous system damage, probably intrauterine in nature, and possibly due to his mother's continuous spotting during the pregnancy. He seems very educable and responsive and should benefit greatly from training. Medication might be helpful in diminishing his hyperactivity and distractability so that he could respond even better.

Summary of Neurological Evaluation - 12/66

Clinical Neurological Examination

The clinical neurological examination showed a normally developed boy who was somewhat restless. He kept moving around during the interview situation--he pulled various drawers open, but could be occupied with some toys with which he played quite well. The patient appears to be of average intelligence, but this is somewhat difficult to estimate because of his marked language problem. There were some words we could understand, but others were quite incomprehensible.

The cranial nerves are intact. Optic discs were somewhat poorly visualized but were normal. The rest of the fundus was also normal on both sides. The ocular movements were smooth. Ben has rather blue sclerae. Ocular convergence is good. The pupils are medium wide, round, and equal and react well to light and accomodation. The face is symmetrical. The tongue and uvula are in the midline. The deep tendon reflexes are slightly decreased in the upper extremities; they are normal in the lower extremities; they are equal on the two sides and there are no pathological reflexes. Muscle tone is normal. Muscle strength is good and muscle coordination is also essentially normal. He is able to walk on his toes. He can not hop on either leg, but he runs quite well. Sensation was normal. The clinical interpretation is normal for his EEG diagnosis.

Impressions

Ben has a developmental lag as far as speech is concerned. This probably is on the basis of minimal brain dysfunction due to difficulties during the pregnancy. On the whole, he should profit considerably from speech therapy. There is some suggestion that this patient might show more of a hyperkinetic syndrome when he gets into the school situation, but it is not too marked at the present time. If his hyperactivity should become more of a problem, one could try him on Ritalin or Dexedrine.

Summary of Psychological Report - 12/66

Interview

Ben, of slightly below average height and weight, is a very pleasant appearing child. He shows good affective responses toward adults, but generally does not desire physical contact. He separated from his parents very easily and did not appear to be concerned about them during the test administrations.

Ben uses isolated words, e.g., "all gone", but does not say them distinctly, having trouble with the initial consonants. He is hyperactive, but his behavior is not random. It is directed toward constructive play activities. He prefers playing alone rather than interacting with adults and is creative in playing, e.g., setting up bowling pins in a straight line and knocking them down with a ball. His hyperactivity is controllable in that he was able to sit for 20 minutes at a time while being tested. However, he does not attend well and has a short attention span. He goes from one object to another but plays constructively with each one.

He follows simple verbal directions when firmly presented, e.g., turn lights out. He imitates well the behavior of adults. This he does better when he has not been asked to imitate. If told to repeat a sound, he may refuse to do so at the time, but later will say these sounds while playing alone.

Test Results

Ben received an I.Q. score of 51 on the Stanford-Binet (selected items). This score was lowered greatly because the Stanford-Binet requires verbal responses which Ben is not capable of giving. This and other factors, such as his constructive play habits and his ability to imitate, indicates that he is functioning at a higher level and that his potential is much greater.

He knows a lot of words but he cannot say them well. He is not able to respond to two dimensional stimuli, e.g., a picture of a telephone, but will respond to an actual object, e.g., a real telephone.

Impressions

There is enough evidence to indicate minimal brain damage. The speech delay is largely a developmental lag. Emotional disturbances are playing a minor part. An improvement in speech can be expected from Ben because of his potential intellectual capacity and his imitative and constructive behavior.

Educational Approach

Speech and Hearing Evaluation

Ben displayed many of the behavioral characteristics listed above in September when he was seen in the Board of Education's Speech and Hearing Clinic. He was observed to have a very short attention span on directed activities; and he was hyperactive with a low frustration level. Stimuli had to be kept at a minimum, otherwise he withdrew. His motor coordination (gross and fine) was fair-good. It was also noted that he frequently examined toys with his mouth. He appeared to be developing an awareness of size and shape and had some imitative one word speech. He sat at the therapy table for a long period of time and frequently said "more" when he wanted another task or toy given him. His hearing appeared adequate.

During this session to evaluate Ben's eligibility for the language program, it was felt he would be a good candidate due to his obvious language deficit and his evidenced capacity to learn.

Therapeutic Educational Situation

The First Day: When Ben attended his first day of school in November, 1966 as a member of the morning class of the Intensive Language Unit II, he entered a room with two kindergarten tables, a teacher's desk, five kindergarten chairs per table and two adult chairs. None of the toys and instructional materials was visible, except for two empty crates in which materials had been stored. He was observed to be extremely hyperactive--climbing chairs and tables, screaming and jumping up from the therapy table with a bellow to race around the room three or four times, spin himself around in the middle of the room, or bang his head on the floor. He did not respond to one or two word verbal commands--he would scream "no" and throw himself bodily onto the floor as he screamed and banged his head.

He did not participate in any of the attempted structured group table activities. If he was not displaying hyperkinesis, he was silently sitting at the table or on the floor sucking his thumb. During the unstructured activity, Ben played with corrugated building blocks in the same area the other four children were playing, but did not interact with any of the others, even though a couple of them were also playing with the building blocks. Periodically, Ben would climb into one of the crates with a couple of building blocks and suck his thumb as he looked around the room at the others.

During cookies and milk Ben showed just as little control as he had during the other activities. He shoved the whole cookie into his mouth as he reached for one of the other children's cookies. When the clinician tried to restrain his aggression, he threw himself out of the chair onto the floor and began banging his head on the floor and then on the legs of the chair as he screamed. He finally quieted when he was moved from the area of the table and chairs and stretched out full length on the floor.

It was obvious from Ben's behavior that he needed control from without to fill the void he had within for control. During the weeks to follow, diagnostic therapy was used to aid the clinicians in delineating the incapacities and capacities and behavior of Ben to aid in the individual and group therapy approach to his problems.

Two Weeks Later: Ben's distractability was beginning to show signs of responding to his environment's imposed controls. He was still very hyperkinetic between structured activities; yet, he began to give more, too. He became the child in the group the clinicians would expect to imitate the required words or activities during the tasks. It was also realized that when controlled, Ben comprehended directions very well and could follow them equally as well.

The clinicians found Ben to be very good in the following: auditory discrimination, matching colors, matching geometric shapes and sizes, pointing to named parts of his body schema (including facial schema), imitating group gross motor activities, and in imitating simple words. He was fair in fine motor coordination activities (e.g., stringing beads, snapping and unsnapping beads), eye-motor coordination (e.g., drawing a continuous straight line), figure-ground discrimination (pointing to named object in situation pictures of increasing figure-ground complexity), and accepting changes of routine within the same environment. Ben was poor in self-control, verbal self-expression, constancy of shape discrimination, adjusting to any unexpected newness to his established environment, change of environment, frustration tolerance, and handling of abstractions.

Two Months Later: Ben walked into the classroom and holding his hands up in a "come unto me" fashion, said "my schoo(l)". From that day in early January, Ben began to actually see and accept his peers and teachers and show marked learning and language improvement from week to week. He established himself as the leader of the group and just recently has become the sergeant-at-arms. By January, Ben was good in such fine motor coordination activities as stringing beads, snapping and unsnapping beads and buckling and unbuckling his own boots. He showed signs of improvement in figure-ground discrimination and marked improvement in adjusting to unexpected newness to his established environment. However, his self-control, although somewhat better had become almost as routinized as his daily activities, with an outburst every day at milk and cookie time and sometimes at nap time. Abstractions were still incomprehensible to him. And to change Ben's environment was sure to yield tragically unbelievable circumstances of screaming, crying, falling on the floor, head banging, and foot stomping. This scene he originated in December when he was taken to see Santa Claus at Cobo Hall. He reproduced the scene in January when he was taken, along with the other children, to an assembly in the school auditorium. On the first occasion, he was told how "good boys" act and asked to be a good boy; it worked. On the second occasion, he would not be talked out of it and was consequently removed from the situation and returned to his classroom.

The most outstanding improvement noted in January was Ben's voluntary one-word expressions and the acquisition and adequate usage of new words in one-word expressions.

At Present: Ben continues to show progress in eye-motor coordination, figure-ground discrimination, constancy of shape, self-control, frustration tolerance and change of environment acceptance. (He now enjoys trips to the supermarket and other rooms in the school, for example.) He has been given the responsibilities of going to the lavatory alone and of folding and putting away the children's blankets after nap time. His attention span has increased to 35 minutes, if two activities are presented during that time.

He can now accept "play with the blocks tomorrow" and similar abstractions. He displays meaningful creative play with increasing complexity. And he now expresses himself in simple sentences and comprehends complex sentences. He questions the names of things with "what?" and does not have to be reminded of the name of an object new to him once told the name. Ben seems to have a working vocabulary (expressive) of a three year old and an understanding vocabulary (receptive) of a five year old, in comparison to the two year old expressive vocabulary he appeared to have when he first entered the class. However, his pronunciation of some words is still quite infantile.

Remedial Procedures

Into the following schedule

9:20 -	Enter room, remove coat and boots
9:25 - 9:35	Free play
9:35 - 9:45	Lavatory
9:45 - 10:05	Group table activity or individual therapy
10:05 - 10:20	Gross motor coordination exercises or individual therapy
10:20 - 10:30	Free play
10:30 - 10:45	Nap
10:45 - 11:00	Milk and cookies
11:00 - 11:15	Group activity or individual therapy
11:15 - 11:25	Lavatory
11:25 - 11:30	Dress for leaving

these remedial procedures are used.

For gross motor coordination: Walking a straight yellow line on the floor, stepping up onto a chair, jumping from the floor and from a kindergarten chair, crawling, walking between two stationary objects, running, hopping, throwing bean bags into a basket, rolling a ball on the floor, catching and throwing a ball, rolling bodily across the floor, and sitting, standing and lying down.

For fine motor coordination: Stringing beads, snapping and unsnapping beads, pinching (put hinged clothespins on corrugated board), approximating each finger to the thumb, Montesorri form board, Montesorri cylinder block, drawing circles and straight lines and coloring (also used for eye-hand coordination).

For language acquisition and concept formation: Although picture lotto, objects (real and artificial), and picture frames for object identification are used, each activity that is engaged in provides language stimulation. In addition to those activities listed above, the following activities which are used for training of the functions their names imply are also used for language stimulation. Auditory discrimination, color identification and discrimination, size and shape identification and discrimination, figure-ground discrimination, spatial relationships, eye-motor coordination, structured play (including creative) activities, free play activities, daily routines for personal cleanliness and etiquette, and daily routines of eating, sleeping and working.

Associated with all of these exercises is the imperative--control. At this time it is necessary that there be outside controls for Ben; therefore, for every activity the necessary control becomes inherently a part of the activity. Every new activity that is presented is presented with the necessary control. "Wait" and "listen" are passwords the clinicians cannot be without.

It might be well to add, that naughtiness is not a fate worse than death for Ben. It is more like a daily fate for his clinicians. Ben's naughtiness is "rewarded" with permission to sit on the "green chair" at a corner table behind a screen. Amazingly enough, there are times when he wants to "sit g-een chair".

Educational Prognosis

Although Ben has calmed down considerably from the extreme hyperactive state he was in when he joined the class, he may still be termed as hyperactive. However, from an educational point of view, he seems quite capable of learning and learning very fast, as long as the instructional materials and provided experiences are varied to harness his hyperactivity and capture his interest.

He has a good language foundation which shows signs of growth, daily. Although there is articulatory imperfection in his speech, the clinician feels that continued language growth and developmental maturation will alleviate these imperfections. It is on this basis that the clinician feels his learning potential is adequate; and it is upon this basis the fruition of his learning potential will rest.

LENNY: A CASE STUDY

Introduction

Lenny was four and a half years old when he was brought to the Detroit Public Schools Speech and Hearing Clinic because his speech and language were not developing normally. He had been enrolled in kindergarten, but was asked to leave after one and a half hours because the teacher could not control him. He entered the Intensive Language Program just after his fifth birthday, and was seen by a team of doctors a month later. The team consisted of a neurologist, pediatrician, psychiatrist, psychologist, psychiatric social worker, and audiologist.

Family Composition and History

(This section of the report is omitted.)

Pregnancy and Birth

Lenny was born of a full term pregnancy. The mother described no illness, bleeding, or excessive weight gain at this time. She claims that labor lasted only four or five hours and that she was put to sleep with a general anesthetic for the delivery. The delivery was uncomplicated. There is some contradiction here however, for her doctor indicated that she had received a spinal anesthesia and that labor had lasted twenty-five hours.

Developmental and Social History

The child sat alone at five to six months and walked without assistance at eight months. He was toilet trained at two and a half years of age. According to the mother he more or less trained himself. The child has never had any convulsions, seizures, or fainting spells. He began making some sounds when he was one year old, but these disappeared during the period of 17 to 20 months. Between 17 and 20 months Lenny's behavior became solitary. At this time he had an ear infection. He was also living a rather isolated life, being alone with his mother a great deal. During this period the father drank excessively.

Clinical Observations

Lenny first came to the Intensive Language Program with both his parents. He was a normal-looking, healthy, five year old who had anxiety in separating from his mother and father. He was hyperkinetic and distractible,

and could not inhibit his responses to stimuli. He had to be controlled physically. His eye contact was poor. Gross motor coordination was good, but fine motor coordination, such as holding a pencil, was poor. He could not fit pieces into puzzles correctly. Lenny could read with comprehension and spell some words. He used mostly single words or two-word phrases to communicate. However, he used a jargon-like vocalization throughout the day. He did not appear to have any trouble comprehending language. These were many stereotyped phrases which he used such as "Uh--good morning" and "don't touch", using a wide variety of inflections as if unable to control his production. He displayed echolalia which was characterized by abnormal pitch, pitch shift, and inflection--very much like that described by Katrina DeHirsch as characteristic of the schizophrenic child. It differs from the echolalia of the brain-damaged child, which is normal in pitch and inflection. Lenny did not interact with the others in the group, although he responded to the clinicians.

Diagnostic Impressions

The psychiatrist feels that Lenny suffered a severe developmental crisis during the period of 17 to 20 months. This caused Lenny to develop an autistic behavioral pattern. These traits are not as severe as autism or childhood schizophrenia, but the personality configuration approximates that. He also shows some settled signs which might be interpreted as organic, such as hyperactivity and distractibility.

The psychiatric social worker's impression is that Lenny either suffered some massive developmental crisis or a virus which produced an encephalopathy.

The pediatric examination showed that Lenny is a well-developed, healthy boy, who is normal except for the unexplained slowness in speech.

The audiologist reports that hearing is normal.

The psychologist administered the following tests: Vineland Social Maturity Scale, Stanford-Binet, and Draw-A-Person. Lenny obtained a full scale I.Q. score of 60 on the Stanford-Binet, which places him in the mildly retarded range of intelligence. He performs better on tasks that require recognition of a correct answer that is shown along with a number of incorrect answers. His performance is also good when he has to give a motoric response. His performance is poorer when he has to formulate an answer and/or give a verbal response. The psychologist feels that at times his performance may have been hampered by his distractibility and short attention span.

His drawing of a person was comprised of a series of scribbles with no human likeness.

He received a social maturity age score of five years on the Vineland Scale.

The psychologist feels that there is enough evidence to indicate minimal brain damage, but that the emotional problems are the main cause of his present condition.

The neurologist found no evidence that Lenny has an organic central nervous system disorder that would account for his speech and language difficulty. His electroencephalogram is normal. The neurologist feels the problem is one of psychogenic origin.

Treatment

While the ultimate objective is to develop language, there are skills and behavior patterns to be learned previous to direct language training. Therefore, a program was devised to do the following: 1) Reduce hyperkinesis, 2) Increase attention span, 3) Encourage socialization, 4) Improve fine motor coordination, 5) Reduce echolalia, and 6) Develop language.

Lenny attends the Intensive Language Program for two and a half hours each day. He is in a group of four children who have problems similar to his. Part of the time is spent in individual therapy with one clinician. The remainder of the time is spent in group activity with another clinician.

The first task was to reduce Lenny's hyperkinesis. This was done by structuring Lenny's environment to be free from extraneous stimuli; and regulating his behavior within prescribed limits. It was hoped that by having controls placed upon him he would eventually internalize them, thus being able to inhibit his own behavior.

The therapy rooms were kept free of pictures and brightly decorated bulletin boards. Materials were kept in closed cabinets, and the shades on the windows were drawn to prevent Lenny from being distracted by moving objects outside. Whenever possible Lenny's work area was enclosed by a screen. This further limited his environment visually and physically. This is similar to Cruickshank's "cubicles". Even when Lenny was seated at a table with other children he was enclosed on three sides by the screen. He was given only a limited number of materials to work with at one time. Each step of a task was outlined for him, then finished by him before another step was begun. He was not allowed any choice of movement or selection of materials. When necessary, the clinician would put her arm around his shoulder or hold his hands on the table to restrain him.

At first, activities could be presented for only a short period of time. However, as Lenny's hyperkinesis was reduced, he was able to attend to a task for a longer period of time.

Also, as his behavior improved Lenny was allowed to participate in activities with other children in a setting which was, although closely supervised, less rigidly structured than before. He was allowed more physical movement and could ride bikes with the other children or play ball with them.

During this time Lenny worked on improving his fine motor coordination by doing such tasks as learning to hold and manipulate a crayon and pencil, doing puzzles, buttoning clothes, and drawing on the blackboard. Gross motor exercises were done following the model by Kephart. The Frostig materials were used to determine Lenny's ability in perceptual areas.

As Lenny's language usage increased, so did his echolalia. The clinicians tried to stop this behavior by asking him a question, then quickly saying, "Answer me, don't say what I say". This just served to confuse him. Lenny does not seem to use echolalia due to lack of comprehension or to stall for time, since he follows the direction as he is reiterating the command. At the present time the clinicians are concentrating on interrupting any echolalia which occurs when Lenny is not answering a question, such as when he is told to do a motor activity.

In the area of language development a multisensory approach is used. As often as possible objects are presented first so they may be manipulated. Then pictures of the objects are presented. Similarities and differences between objects are pointed out. The function of the object is stressed. The emphasis is on meaningful language.

Prognosis

There has been a steady change in Lenny's behavior. However, as some aspects of his behavior come under control new problems arise. For example, as his overall hyperkinesis decreased there was an increase in more specific forms of motor behavior such as drumming with his fingers or gnashing his teeth. He now displays a catastrophic response if another child cries or becomes unruly.

He is still hyperkinetic some of the time, but at other times is able to concentrate on an activity for a long period of time even if there are distracting stimuli, such as children playing, in the room. He only occasionally needs to be structured to the extent that he was at the beginning of the program.

He interacts with the other children, but prefers to play by himself.

In the area of fine motor coordination he has improved greatly. He now holds and manipulates pencils correctly, colors fairly well, and is able to do some of the more complex puzzles.

He now uses some sentences such as "Lenny play with the bike?" and "Andy's shirt is red". He communicates verbally more frequently and is usually understood by the clinicians.

Due to Lenny's hyperkinesis, distractibility, and lack of language at the time that diagnostic tests were administered, it seems that those tests were not valid indicators of his overall ability. Judging from his rate

of improvement in the Intensive Language Program and the skills he has already acquired it appears that Lenny will be able to be placed in a public school program after his language matures further and his behavior becomes more constant.